Morpho-agronomic characterization of sweet potato (Ipomoea batatas L.) accessions in dry Caribbean conditions (Colombia)

Evelin Gómez¹, Alfredo Morales², Amparo Rosero³, Esteban Burbano⁴, Iván Pastrana⁵

¹) AGROSAVIA, CI Motilónia, Km 5 vía a Becerril, Agustín Codazzi, Cesar, Colombia.
²) INVIT. Apdo. 6, Santo Domingo, Villa Clara, Cuba.
³) AGROSAVIA, CI Turipánal, Kilómetro 13, Vía a Montería, Cereté, Córdoba, Colombia.
⁴) eegomez@agrosavia.co

Introduction

The morphoagronomic characterization is very important to know the genetic diversity of collections of germplasm. The aim was characterizing the native Ipomoea batatas L. genetic resource collected in different regions of Colombia. Results allow knowing the level of variation of genotypes to be used in future breeding programs.

Methodology

It was characterized 117 accessions of sweet potato (Ipomoea batatas (L.) Lam. Native accessions was collected in 29 municipalities of eight departments of Colombia that are between 134 and 2555 masl (Figure 1). The collected materials were established in plots of 5m x 5m with a distance between plants of 1m x 0.40m (Figure 2).

Results

The cluster analysis allowed the formation of nine diversity groups for the morphological characters and corroborated what was suggested by the CPA, given that 68 genotypes did not tuberized and 84 genotypes did not flower, these being the parameters of main discrimination. The association groups of the CA are determined by the absence or presence of values in the variables corresponding to tuberous roots and / or flower.

Of the accessions that tuberized, the flesh color was represented graphically in numerical terms. Purple flesh genotypes were grouped in the coordinates -b*, those of white, yellow and orange flesh in the coordinates + b* with different distribution in the coordinate + a*. The greatest total color difference was between the orange and purple groups, indicating a greater colorimetric distance between the genotypes high in β-carotene and anthocyanins, while the smaller difference occurred between the orange and yellow, which is because both colors they are provided by carotenoids.

Conclusions

Principal components allowed define the most relevant morphometric variables such as flowering and tuberous root formation.

Cluster analysis allowed the formation of 9 relatively homogeneous groups that allow differentiating the characteristics of the accessions evaluated.

The evaluation carried out allows to differentiate morphologically the accessions that are found in the germplasm bank and facilitates the selection of desirable characteristics for genetic improvement plans.

Bibliographic References